

What Is Claimed Is:

1. A method of manufacturing fine metal particles, which comprises the steps of:

dispersing molten metal particles in a dispersion medium by way of a process wherein a

low melting point metal containing at least 10% by mass of tin and selected from

5 metals excluding alkali metals is mixed with the dispersion medium to obtain a

mixture which is subsequently heated to melt the low melting point metal, and a

dispersing energy is applied to the dispersion medium to disperse the low melting

point metal in the dispersion medium to obtain a molten metal particle-dispersed

substance; and

10 forming solid particles having an average particle diameter of 15  $\mu\text{m}$  or less by cooling the

molten metal particle-dispersed substance to thereby solidify the molten metal

particles;

wherein said step of dispersing molten metal particles in a dispersion medium and said step

of forming solid particles are preceded by a step of mixing the dispersion medium

15 with a particle coalescence-preventing agent which is capable of adsorbing onto

and/or reacting with at least the molten metal particles and also capable of

preventing the generation of coalescence at least among the molten metal particles,

said particle coalescence-preventing agent being selected from the group consisting

of rosin and/or derivatives thereof, tin salts of rosin and/or derivatives thereof, fatty

20 acids, tin salts of fatty acids, organic acids and tin salts of organic acids.

2. The method of manufacturing fine metal particles according to claim 1, wherein said particle coalescence-preventing agent is rosin and/or a derivative thereof.

5 3. The method of manufacturing fine metal particles according to claim 1, wherein said particle coalescence-preventing agent is rosin soap.

4. The method of manufacturing fine metal particles according to claim 1, wherein said particle coalescence-preventing agent is a tin salt of an organic acid having a carboxyl  
10 group.

5. The method of manufacturing fine metal particles according to any one of claims 1 to 4, which further comprises a step of removing the solidified metal particles obtained in said step of forming solid particles from said dispersion medium, thereby leaving a residual  
15 liquid, which is then recycled as a particle dispersion medium.

6. The method of manufacturing fine metal particles according to any one of claims 1 to 4, wherein the low melting point metal is employed at a ratio of 0.1-100g per 100g of the dispersion medium, and the particle coalescence-preventing agent is employed at a  
20 ratio of 0.01-10g per 100g of the dispersion medium.

7. The method of manufacturing fine metal particles according to any one of claims 1 to 4, wherein the application of said dispersing energy to the dispersion medium is performed by making use of a high-speed agitator comprising a cup-shaped stator having  
5 slits in the sidewall thereof, and a rotator mounted inside the stator and having a rotary vane, wherein a fluid material is permitted to be introduced through said slits into said stator, in which the fluid material is subjected to a high shearing force through an interaction between said stator and said rotator by actuating said rotator to rotate at a high speed relative to said stator, the fluid material being subsequently discharged from the  
10 stator.

8. The method of manufacturing fine metal particles according to claim 7, wherein the number of revolutions of the high-speed agitator is at least 5000 per minute, and the temperature of said heating is at least 10°C higher than the melting point of the low  
15 melting point metal.

9. The method of manufacturing fine metal particles according to any one of claims 1 to 4, wherein the low melting point metal is employed at a ratio of 0.1-100g per 100g of the dispersion medium, the particle coalescence-preventing agent is employed at a ratio of  
20 0.01-10g per 100g of the dispersion medium, and the application of said dispersing energy to

the dispersion medium is performed by making use of a high-speed agitator comprising a cup-shaped stator having slits in the sidewall thereof, and a rotator mounted inside the stator and having a rotary vane, wherein a fluid material is permitted to be introduced through said slits into said stator, in which the fluid material is subjected to a high shearing force through an interaction between said stator and said rotator by actuating said rotator to rotate at a high speed relative to said stator, the fluid material being subsequently discharged from the stator.

10. The method of manufacturing fine metal particles according to any one of claims 1 to 4, wherein the low melting point metal is employed at a ratio of 0.1-100g per 100g of the dispersion medium, the particle coalescence-preventing agent is employed at a ratio of 0.01-10g per 100g of the dispersion medium, and the application of said dispersing energy to the dispersion medium is performed by making use of a high-speed agitator comprising a cup-shaped stator having slits in the sidewall thereof, and a rotator mounted inside the stator and having a rotary vane, wherein a fluid material is permitted to be introduced through said slits into said stator, in which the fluid material is subjected to a high shearing force through an interaction between said stator and said rotator by actuating said rotator to rotate at a high speed relative to said stator, the fluid material being subsequently discharged from the stator, and the number of revolution of the high-speed agitator is at least 5000 per minute, and the temperature of said heating is at least 10°C higher than the melting point of the low melting point metal.